



MISSOURI DEPARTMENT OF NATURAL RESOURCES
ENERGY CENTER - ENERGY LOAN PROGRAM
WINDOW REPLACEMENT WORKSHEET

BUILDING	LOCATION	DATE
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To estimate the savings of replacing existing windows with efficiency upgrades, the following information must be known:

- The U-Factor of the existing window (See U-Value table below).
- The U-Factor of the replacement window (See U-Value table below).
- The total area of the windows being replaced (square feet).
- The heating energy cost (\$/million Btu).
- The heating plant efficiency (in percent).

SAVINGS CALCULATIONS

1.	Enter the U-Factor of the existing windows.....	_____
2.	Enter the U-Factor of the replacement windows.....	_____
3.	Subtract line 2 from line 1	_____
4.	Add 0.86 to line 3	_____
5.	Enter the total area of the windows to be replaced.....	_____
6.	Multiply line 4 by line 5.....	_____
7.	Multiply 0.1 by line 6	_____
8.	Enter the heating plant efficiency (percent divided by 100)	_____
9.	Divide line 7 by line 8.....	_____
10.	Enter the energy cost (\$/million Btu).....	_____

YEARLY SAVINGS

11.	Multiply line 9 by line 10.....	\$ _____ /year
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PROJECT COST

12.	Enter the total cost of the window replacement including material, labor and design.....	\$ _____
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SIMPLE PAYBACK

13.	Divide line 12 by line 11	_____ years
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WINDOW U-VALUE TABLE

Window System Type	U-Factor*
Single Glass.....	1.10
Single Glass with storm window.....	0.50
Single Glass, low E coating	0.91
Single Glass, low E coating with storm window	0.44
Insulating Glass (double glass).....	0.55
Insulating Glass (double glass) with storm window	0.35
Insulating Glass (double glass), low E coating	0.38
Insulating Glass (double glass), low E coating with storm window	0.32
Insulating Glass (triple glass).....	0.35
Insulating glass (triple glass) with storm window	0.25

* U-Factor values adapted from the 1985 ASHRAE Fundamentals Handbook.